

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR

September 29, 2005

Response to Public Comments
CAAPP Permit Applications for:

Midwest Generation, LLC, Chicago (Crawford) # 95090076
Midwest Generation, LLC Chicago (Fisk) # 95090081
Midwest Generation, LLC, Joliet #95090046
Midwest Generation, LLC, Pekin #95090074
Midwest Generation, Will County (Romeoville) #95090080
Dynergy Midwest Generation, Alton #95090096
Dynergy Midwest Generation, Inc., Baldwin #95090026
Dynergy Midwest Generation, Inc., Havana #95090053
Dynergy Midwest Generation, Inc., Hennepin #95090052
Dynergy Midwest Generation, Inc., Oakwood #95090050
Ameren Energy Generating Co., Bartonville #95070026
Ameren Energy Generating Co., Canton #95070025
Ameren Energy Generating Co., Coffeen #95090009
Ameren Energy Generating Co., Hutsonville #95080105
Ameren Energy Generating Co., Meredosia #95090010
Ameren Energy Generating Co., Newton #95090066
Electric Energy, Inc., Joppa #95090120
Southern Illinois Power Coop, Marion #95090124
Soyland Power Cooperative, Inc., Pearl #95080060
Kincaid Generation, LLC, Kincaid # 95090078
City of Springfield, Springfield #95090091

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CAAPP Permits

The Clean Air Act Permit Program (CAAPP) is Illinois' federally approved operating permit program for major stationary sources of emissions and other sources, as required by Title V of the Clean Air Act. Permits issued under the CAAPP are known as "CAAPP permits." Major stationary and other sources covered by Title V of the Clean Air Act are required to apply for and obtain a CAAPP permit. CAAPP permits must include emissions limitations and standards and other requirements under state and federal environmental laws and regulations and related provisions to assure compliance with applicable requirements. CAAPP permits generally do not impose new substantive requirements. Rather, as previously indicated, these permits provide for, among other things, testing, monitoring, recordkeeping, and reporting (a portion of which may be "new" requirements) to assure compliance with existing state and federal environmental requirements. The conditions of CAAPP permits are enforceable by the public, as well as the state and federal government. CAAPP permit decisions are generally subject to public participation requirements.

Public Participation

In June 2003, in accordance with the CAAPP, the Illinois EPA opened public comment periods on the draft CAAPP permits for the 22 coal-fired power plants listed below:

Midwest Generation, LLC, Chicago (Crawford) # 95090076	Dynegy Midwest Generation, Inc., Havana #95090053
Midwest Generation, LLC Chicago (Fisk) # 95090081	Dynegy Midwest Generation, Inc., Hennepin #95090052
Midwest Generation, LLC, Joliet #95090046	Dynegy Midwest Generation, Inc., Oakwood #95090050
Midwest Generation, LLC, Pekin #95090074	Ameren Energy Generating Co., Bartonville #95070026
Midwest Generation, Will County (Romeoville) #95090080	Ameren Energy Generating Co., Canton#95070025
Midwest Generation, Waukegan #96090047	Ameren Energy Generating Co., Coffeen #95090009
Dynegy Midwest Generation, Alton #95090096	Ameren Energy Generating Co., Hutsonville #95080105
Dynegy Midwest Generation, Inc., Baldwin #95090026	Ameren Energy Generating Co., Meredosia #95090010

Ameren Energy Generating Co., Newton
#95090066

Soyland Power Cooperative, Inc., Pearl
#95080060

Electric Energy, Inc., Joppa
#95090120

Kincaid Generation, LLC, Kincaid
95090078

Southern Illinois Power Coop, Marion
#95090124

City of Springfield, Springfield
#95090091

Due to the significant nature of the 22 coal-fired sources, and based on expressed public interest, the Illinois EPA held six public hearings throughout the state and provided a comment period of approximately 90 days. After the close of the comment period and review of public comments received during this comment period, in October 2003, the Illinois EPA prepared and sent proposed CAAPP permits to USEPA for review.

Based on further consideration and consultation with USEPA, as well as with applicants and interested parties, in December 2004 and again in July 2005, the Illinois EPA distributed drafts of revised proposed permits soliciting comments on the changes that were being contemplated. The Illinois EPA afforded the applicants and persons who had participated in the public process the opportunity to review the drafts of the revised proposed permits.

The Illinois EPA reviewed and responded to all significant comments raised by the public and the applicants during its review of the CAAPP permits. The Illinois EPA provided an opportunity for the applicants and individuals that participated in the original public comment period to review the changes that the Illinois EPA made to the proposed permits and to submit further comments on these changes. Concurrently, the Illinois EPA prepared this Responsiveness Summary for the comments from the public and the applicants on the draft permits.

In August 2005, in accordance with the CAAPP, the Illinois EPA prepared and sent proposed CAAPP permits and a draft Responsiveness Summary to USEPA for a 45-day review. Within the 45-day review, the USEPA expressed no objection to 21 of the 22 CAAPP permits. As such, today the Illinois EPA has issued the 21 CAAPP permits and a Responsiveness Summary.

Petitions

Under the CAAPP, Illinois is required to submit proposed CAAPP permits to USEPA for review. The CAAPP specifies that USEPA may object to a permit; where it does not object, the public may petition USEPA to take such action.

As previously mentioned, in October 2003, the Illinois EPA sent proposed CAAPP permits to USEPA for 22 coal-fired power plants. USEPA did not object to any of these CAAPP permits. In January 2004, the USEPA received petitions requesting that the

USEPA take action objecting to the CAAPP permits for Midwest Generation, LLC's Crawford, Fisk, Joliet, and Romeoville plants. Additionally, in January 2004, the USEPA received a petition requesting USEPA take action objecting to the CAAPP permit for Midwest Generation, LLC's Waukegan plant. The petitions collectively assert that certain or all of the CAAPP permits, in places, fail to comply with state and federal requirements, lack compliance schedules, inappropriately allow excess emissions during malfunction, breakdown and startup, contain terms that are not practically enforceable, fail to address health impacts of the plants, and contain typographical errors, mistakes, and omissions and other inadvertent mistakes. The USEPA did not proceed to respond to any of these five petitions until it was threatened with a lawsuit. Subsequently, pursuant to a settlement to forgo litigation, USEPA responded to the petitions regarding the Crawford, Fisk, Joliet, Romeoville and Waukegan plants, generally denying the petitions but, in part, granting the petitions, often charging the Illinois EPA failed to explain its rationale for certain actions.

The CAAPP permits for the coal-fired power plants that are being issued today address significant public comments. This includes those comments that carried over into the five petitions, and the USEPA's responses to the petitions. Specifically, the permits clarify and enhance the requirements applicable to these plants, including the recordkeeping, reporting, and testing requirements of the permits. Additionally, typographical errors, omissions and other inadvertent mistakes have been addressed.

General Explanation of Coal-Fired Power Plant Permits

Generally speaking, and as more specifically described below, the 21 plants at issue operate coal-fired boilers and associated steam turbines to produce electricity. In addition, these plants have coal-handling operations and, in some cases, other operations including coal processing, fly ash handling operations, diesel engines, combustion turbines, limestone handling or processing operations, and gasoline storage tanks.

A. Coal-Fired Boilers

Each of these 21 plants operate coal-fired boilers for electric generation. The size and age of the boilers varies from older boilers as small as 22 MW to larger, newer boilers in excess of 600 MW. These boilers in some cases have the physical capability to fire gas or oil as auxiliary fuel and routinely use a combination of coal, natural gas, and/or fuel oil as their principal fuel.

CO emissions from the boilers are addressed by good combustion practices. NO_x emissions from the boilers are generally controlled by combustion control measures including low-NO_x burners (LNB) and, over fire air systems (OFA). Certain larger boilers also use add-on selective catalytic reduction systems (SCRs). PM emissions are controlled by electrostatic precipitators (ESPs) except at SIPCO where on one of its boilers a baghouse is utilized and at Soyland where a multi-clone is utilized. Most boilers comply with requirements for SO₂ emissions by selection of coal, however, boilers at four plants have control equipment for SO₂ emissions. This control is flue gas desulfurization

systems (scrubbers). The four plants that have scrubbers are Ameren (Duck Creek), SIPCO (#4), Soyland and CWLP (#33).

The boilers are generally subject to emission standards for CO, NO_x, PM, and SO₂. The boilers are also subject to limitations on the opacity of emissions. With one exception, the boilers are also subject to the federal Acid Rain Program, which imposes requirements on SO₂ and NO_x emissions and requires that the boilers be equipped with continuous monitoring systems (CMS) for SO₂, NO_x, and opacity, with computerized data systems for collection of data. The exception to these requirements is Soyland whose small coal-fired boiler is not subject to the federal Acid Rain Program.

The boilers have the potential to exceed the applicable opacity limitations and emission standards during malfunction and breakdown of equipment. As provided by applicable regulations during malfunction and breakdown, the boilers are authorized to continue operations as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment. Upon occurrence of excess emissions, a source shall, as soon as practicable, reduce boiler load, repair the affected boiler, remove the affected boiler from service, or undertake other action so that excess emissions cease.

The boilers are operated pursuant to formal operating procedures. The permits require that the boilers must be started up in accordance with procedures that are developed and maintained to minimize emissions. As more fully addressed later in this Responsiveness Summary, these startup procedures are applicable because emissions from the coal-fired boilers have the potential to exceed the opacity limitation and applicable emission standards during startup.

For PM, for which continuous monitoring is not performed, emissions testing is required for the boilers. Generally, initial PM testing is to be performed within either 180 days, one year or two years of the permit becoming effective, with 180 days required for the two plants in Chicago, two years required for plants in rural areas, and one year required of other plants. The time interval between subsequent, periodic testing is, in part, dictated by the results of the prior test. Testing must be performed using standard reference Methods 5 and 202, as more fully discussed later in this document. CO emissions testing is also required for the boilers and shall be performed in conjunction with PM testing unless a CO test was completed during a prior relative accuracy test audit (RATA). All emissions testing is to be conducted at maximum operating load and other operating conditions that are consistent with normal operation.

Operating records are to be maintained for the boilers control equipment and for continuous monitoring equipment.

The sources must maintain records that include: the date, description, and duration of each startup. In addition, if startup does not progress in a timely manner to operation in compliance with applicable standards (generally, four hours for boilers rated at 200MW or less, six hours for boilers rated at 200MW to 400MW, and eight hours for boilers rated at 400MW or greater) or if the source's startup procedures are not followed, further

records are required. These additional records must include a detailed explanation of why the startup was not completed sooner or why the source's procedures were not followed; the time at which solid fuel (coal) firing was begun; the flue gas temperature at which the ESP was energized, if coal was fired before the ESP was energized; and estimates of the magnitude of emissions in excess of the applicable standards during startup. For the circulating fluidized bed boiler at SIPCO, a record of the SNCR reagent is also required.

Each plant shall maintain records that include a maintenance and repair log and records for each incident when operation of a boiler continued with excess emissions. These records must include the date, duration, and description of the malfunction/breakdown; the corrective actions used to reduce the quantity of emissions and the duration of the incident; information on whether opacity exceeded the applicable standard for two or more hours; whether PM, CO, or NO_x emissions may have exceeded the applicable standard; a detailed explanation of why continued operation of the affected boiler was necessary; the preventative measures that have been or will be taken to prevent similar malfunctions or breakdowns in the future including any repairs to the affected boilers and associated equipment; and an estimate of the magnitude of excess emissions during the incident.

The provisions of the permits for notification and reporting provide a hierarchy of reports. Excess PM emissions, which would be associated with malfunction/breakdown of equipment, are to be reported immediately and followed by a written report within 15 days of the event. Extended opacity exceedances, in which the total duration of exceedances is greater than 30 minutes (more than 5 exceedances) are also to be reported immediately and then followed with a written report within 15 days if they persist for more than 120 minutes (20 exceedances). The plants are also required to submit quarterly reports that address exceedances, along with data from the CMS for SO₂, NO_x, and opacity.

The plants are required to provide information in the quarterly reports addressing all deviations from applicable requirements of the permit, including both emission control requirements and requirements for monitoring and recordkeeping. This is a common requirement for all units at these plants, including the support operations for the boilers. Such reports would also include information on the total operating hours; the greatest load achieved by each boiler; a discussion of significant changes in the fuel supply; the number, nature, and total duration of startups; information for SO₂, NO_x, and PM emissions and opacity; and operational information for continuous monitoring systems. These reports must include the following information for each period when emissions were in excess of an applicable limitation: the starting date, time, and duration of the excess emissions; the measured emissions rate; and a detailed explanation of the cause of the excess emissions with a discussion of the corrective actions taken to lessen the emissions. Similar information would be required in the unlikely event that CO emissions exceeded the applicable standard, as would be determined from operational data for a boiler.

For opacity and PM exceedances, the quarterly reports must also contain summary information. For each type of recurring opacity exceedance, the reports must include information generally addressing the effectiveness of corrective actions and the role of component failure or degradation. In addition, these reports must provide further information for any new type(s) of opacity exceedance, including a general narrative description, a general explanation of the cause(s), a detailed explanation of the corrective actions, the effectiveness of those actions and the likelihood of future occurrence. Other information relevant to generally explaining the number and magnitude of opacity and PM exceedances during the quarter should also be reported.

In the case of a malfunction/breakdown, sources shall immediately notify the Agency where the applicable PM emissions standard could be exceeded or where the opacity from the boiler exceeds or may have exceeded the applicable limit for more than five consecutive 6-minute averaging periods. A follow-up report is to be submitted within 15 days.

B. Other Boilers for Electrical Generation

A few of these plants also operate smaller natural gas or oil-fired boilers for power generation. These boilers are typically operated only when the coal-fired boilers are inadequate or unavailable to meet the demand for electricity. These boilers are not equipped with add-on control equipment, but instead rely on selection of fuel and good combustion practices for control of emissions. The boilers shall be started up in accordance with written procedures that are specifically developed to minimize emissions from startups. The boilers are generally subject to emission standards for CO, PM, SO₂, as well as the opacity limitation.

Similar to the coal-fired boilers, some of the oil/gas-fired boilers are authorized subject to certain terms and conditions to continue operations with excess emissions as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment and subject to applicable conditions. In the case of a malfunction/breakdown, sources shall immediately notify the Agency for each incident in which the opacity from the boiler exceeds or may have exceeded the applicable standard for an extended period of time. A follow-up report needs to be submitted within 15 days.

Testing requirements for these boilers are developed on a boiler-specific basis to consider the limited operation of a boiler. These boilers are not subject to the extensive emission monitoring required of the coal-fired boilers, given the nature of the fuels being fired and the limited operation of the units. Other recordkeeping requirements are imposed as appropriate for the nature of the operations and applicable standards. Quarterly reporting is required consistent with the schedule for coal-fired boilers.

C. Auxiliary Boilers

Auxiliary boilers or heating boilers provide steam to support the operation of a plant, including producing steam to heat a “power boiler” as part of the preliminary startup of a

boiler, not for generation of electricity or distribution. These boilers do not operate when the power boilers are operating. Provisions for these boilers are similar to those of the natural gas and oil boilers used for production of electricity.

D. Coal Handling and Coal Processing

These plants handle, transfer, and store coal in a series of operations. Coal processing is also conducted at many of these facilities to reduce the size of the coal to meet the fuel size requirements of the boilers. PM from coal-handling and coal processing is controlled by various measures, including the natural moisture content of the coal and application of dust suppressant and water spray, as well as with enclosures, covers, and dust collection devices. The PM emission from coal handling and processing are subject to an opacity limit and various regulations that address fugitive PM emissions. The PM emissions from coal processing operations are also subject to PM emission standards for process emission units.

For coal handling and processing, at least monthly inspections of control measures are to be performed while the equipment is in use, by personnel that are not directly involved in the operation on a day-to-day basis. These inspections are to confirm compliance with the work practices utilized to control dust (PM emissions). Also, detailed inspections of dust collection equipment are to be performed at least every 15 months while equipment is out of service, both before and after any maintenance and repair is performed. The inspection before any maintenance or repair is performed addresses the condition of the equipment as it was operating historically. The second inspection addresses the condition of the equipment for future operation, addressing the maintenance and repair that has been performed.

For coal handling and processing, opacity testing is generally to be performed on an annual basis with initial testing generally required within three months of the permit condition becoming effective. For coal handling, subsequent testing shall be performed at least annually. Additionally, for coal processing, to address the PM emission standards, PM testing shall be promptly performed upon request of the Agency. Testing on a set frequency is not required because the control measures used for coal processing, when properly operated, assure compliance with these standards and the performance of control measures can be assessed by direct observation. Provision is made for testing upon request in the event that such direct observations are unable to determine compliance.

For both coal handling and processing, records shall be maintained for, among other things, the control measures that are being used, operational data, maintenance and repair activities, and any malfunction/breakdown of equipment. Records of the required inspections shall also be kept.

Reporting of deviations from the established control measures that last more than 12 hours shall occur within 30 days. All deviations from applicable standards or limitations

in the permit must be addressed in a quarterly report, submitted with the quarterly report for the coal-fired boilers.

E. Ash Handling and Limestone Handling and Processing

Many of the plants operate ash removal systems that handle ash collected at the coal-fired boilers in a dry state. PM is controlled by enclosures and dust collection devices. A few of these coal-fired plants handle other bulk materials, typically limestone. PM is controlled by moisture content of the material, enclosures, covers, and dust collection devices. Ash handling and limestone handling and processing are subject to opacity limitations, the fugitive PM emission regulations, and PM standards.

Regular inspections of control measures are required of the operation while the equipment is in use by personnel other than those directly involved on a day-to-day basis to confirm compliance with the work practices. For ash handling and limestone processing and handling, detailed inspections of dust collection equipment must be performed at least every nine months before and after the equipment is out of service.

Initial testing of ash handling and limestone processing and handling units must generally occur within three months of the permit condition becoming effective. Subsequent testing shall be performed at least annually. For Electric Energy and Soyland, such observations are only required for ash handling equipment from which visible emissions, i.e., any visible emission, are normally observed. All units must also undergo PM testing at the request of the Agency.

These facilities shall keep records of, among other things, the specific control measures that are used, operational data, required inspections, and times when the control measures are not utilized.

For ash handling and for limestone processing and handling reporting of an extended deviation from the identified control measures, generally more than two and twelve hours respectively, shall occur within 30 days. All deviations from applicable requirements in the permit shall be addressed in the quarterly report accompanying the report for the coal-fired boilers.

F. Gasoline Storage Tanks

Some of these plants utilize small gasoline storage tanks for fueling of plant vehicles. The tanks are subject to various regulations for control of emissions of volatile organic material (VOM) from storage and transfer of gasoline. All tanks need to be equipped with a permanent submerged loading pipe. Those plants located in the Chicago and MetroEast metropolitan areas cannot use high vapor-pressure gasoline between May 1 and September 15 of each year, consistent with generally applicable requirements in the area for vapor pressure of gasoline. Certain storage tanks, which do not meet the

exemptions for such systems must also comply with applicable requirements for vapor-balance systems.

Annual inspections of these tanks are required. These facilities also must keep appropriate records to show compliance with applicable requirements, such as maintenance and repair logs for the loading and control pipes system. For the plants located in the metropolitan areas, additional records shall be kept to address the additional control requirements that apply in this area.

These facilities shall report significant deviations from the applicable permit requirement, i.e., failure of the submerged loading within 30 days. These facilities must also report in the quarterly report for the coal-fired boilers any other deviations.

G. Engines

Several of these plants operate reciprocating engines fired on oil that power electrical generators. These engines generally function as a source of backup power for a plant to meet various on-site needs. They may also be used as starter engines for combustion turbines at a few plants, which are used to produce electricity for distribution. The engines are fired with distillate fuel oil. These engines are subject to opacity limitations and SO₂ standards.

Initial opacity testing shall be performed within 50 hours of operation, starting from the effective date of a permit and at least every 250 hours of operation thereafter. Opacity shall be observed at least every six months, by someone other than the operator, if the engine is routinely exercised; if the engine is not routinely exercised, such testing shall occur at the request of the Agency or upon every startup.

Initial sampling of the oil supply for engines is required to confirm that the sulfur content of the oil already at a plant is such to allow compliance with applicable standards related to SO₂ emissions. Thereafter, such sampling would normally be required only if a noncompliant shipment of oil was received.

Records shall be kept of the hours of engine operation, opacity observations, maintenance and repair, malfunctions/breakdowns, shipments of distillate fuel oil, whether the SO₂ emission standard would be violated by burning this shipment of fuel, fuel oil usage, and the sulfur content of oil supplied to the engines.

These sources must notify the Agency immediately for each incident in which there are exceedances of the applicable opacity limits. A follow-up report needs to be submitted within 15 days. Sources must also notify the Agency within 30 days of a deviation from the SO₂ standard or when fuel other than distillate oil is burned. All other deviations from any permit condition shall be reported in the quarterly report for the coal-fired boilers.

H. Combustion Turbines

Midwest Generation (Fisk, Crawford), Soyland, SIPCO and Dynegy (Vermilion) operate combustion turbines to supply peaking power and provide an emergency source of power in the event other sources of power fail or are unavailable. The eight combustion turbines previously at the Joliet Station, which were addressed in the draft permit for the station have been retired by Midwest Generation, so are not addressed in the final permit. These turbines are fired with distillate oil and at SIPCO and Midwest Generation (Crawford) the turbines are fired with natural gas and use oil as a backup fuel. The units are subject to the opacity limitation and the SO₂ standard.

Opacity testing shall be performed initially within 250 hours of operation from the effective date of a permit and thereafter at least every 1000 hours of operation. The opacity shall be observed by someone other than the operator at least every six months if the engine is routinely exercised, or every time it is started, as well as at the request of the Agency, if the engine is not routinely exercised.

Records shall be kept of the hours of turbine operation, opacity observations, maintenance and repair, malfunction/ breakdowns, shipments of distillate fuel oil, whether the SO₂ emission standard would be violated when burning distillate oil, the fuel oil usage, and sulfur content of oil supplied to the turbines.

Initial sampling of distillate fuel oil supply for the turbines must occur no later than 30 days after operating a turbine or after a shipment. This is to confirm that the sulfur content of the oil already at a plant is such to allow compliance with applicable standards relevant to SO₂ emissions. Thereafter, such sampling would normally be required if a noncompliant shipment of oil were received.

Immediate reporting of opacity from the engine in excess of the 30 percent limit is required. A follow-up report needs to be submitted within 15 days. Sources must also notify the Agency within 30 days of a deviation from the SO₂ standard or when fuels other than the normal fuels are burned. All other deviations from any permit condition shall be reported in the quarterly report for the coal-fired boilers.

Title I

Title I of the Clean Air Act, among other things, addresses the preconstruction approvals required by the rules for Prevention of Significant Deterioration (PSD) and nonattainment New Source Review (NSR). Although derived of construction permit programs, conditions on new and modified emission units established to address PSD and nonattainment NSR are ultimately embodied in operating permits. Thus, the CAAPP permits may contain previously established, revised or, in limited instance, new conditions pursuant to Title I of the Clean Air Act. Such conditions are designated "Title I" conditions. Where the terms of the condition were established in underlying permits they are designated "TI." Where they were previously established, but are being revised

in the CAAPP they are referred to as “TIR.” Where they are being newly established in the CAAPP permit they are labeled “TIN.”

These T1 conditions place additional limitations and operating requirements on the new and modified emission units at these plants. Typically, the T1 conditions limit annual emissions from a unit. More extensive requirements apply depending on the nature of the project and the regulations that apply. These T1 conditions do not “include” conditions from the historic state operating permits for these plants.

Concern arose for the manner in which the Illinois EPA apprised the public of the existence of T1 conditions in a given permit. It is uncontroverted that the Illinois EPA clearly identifies any T1 conditions within a CAAPP permit. Further, the Illinois EPA provides information as to their origin. The issue is whether and how the Illinois EPA must apprise the public that a CAAPP permit contains T1 conditions. In the public notice that the Illinois EPA provided for each coal-fired CAAPP permit, the Illinois EPA stated “CAAPP permits may contain new and revised conditions established under permit programs for new and modified emission units pursuant to Title I of the federal Clean Air Act, thereby making them combined Title V and Title I permits” In drafts of the permit prior to 2005, the Illinois EPA included a footnote on the front page of each CAAPP permit indicating that the permit may contain T1 conditions and, if so, how these could be identified. Separate explanation was included in each permit indicating where such conditions would be found in the permit. In the July 26, 2005 draft permits and the August 2005 proposed permits, the Illinois EPA modified its approach including a “new” section 1.5 in each permit that in fact contains T1 conditions.

Carryover Provisions

Concern has been expressed for the failure of the Illinois EPA to include all conditions from underlying state permits in the CAAPP permits or to justify or “explain” the absence of certain state operating permit conditions. The CAAPP permits for the coal-fired power plants were thoughtfully and thoroughly crafted to address applicable regulations and requirements. The Illinois EPA has included terms and conditions as appropriate. However, some terms or conditions from prior state operating permits may have been omitted, such as those terms and conditions that were deemed obsolete, and other extraneous, insufficient or inconsistent. These terms were not environmentally significant and served no purpose. This approach is entirely consistent with the “streamlining” discussions set forth in the White Paper I. In fact, the White Paper I specifically authorizes the exclusion of NSR permit conditions that are obsolete, extraneous, environmentally insignificant or otherwise not required as part of the SIP or NSR program. Additionally, many of the conditions that were excluded were in permits that did not satisfy the criteria for federal enforceability, and thus did not constitute federally enforceable state operating permits (FESOP). Further, the commentors have failed to articulate concerns for specific permit conditions. Moreover, the Illinois EPA is unaware of any requirements to justify on a condition-by-condition basis in those conditions that are properly excluded from inclusion in the CAAPP permit(s).

Statement of Basis

The CAAPP requires the Illinois EPA to provide a “statement of basis” setting forth the legal and factual basis for CAAPP permits conditions. Concern has been expressed for Illinois EPA’s adherence to this requirement. The concern appears to relate to the extent and form of the information that has been provided.

The CAAPP program does not prescribe the extent or form for providing a “statement of basis.” Further, the requirement as spelled out in both the Illinois CAAPP and the federal regulation calls for a “statement.” The plain language of the requirement suggests a certain brevity, if not generalization, as to the basis for permit issuance. Moreover, the purpose of the statement is to guide the USEPA or public through the CAAPP permit. It should also be noted that Federal regulation and other guidance likewise do not prescribe detailed requirements for a permit statement of basis.

The Illinois EPA maintains that each CAAPP permit, together with the initial project summary, adequately describe the coal-fired power plant and address operational flexibility, the permit shield, applicable and non-applicable provisions, monitoring and Title I requirements. Moreover, the record for each CAAPP permit, including this Responsiveness Summary, aptly support the terms and conditions of each permit. Collectively, this information should be sufficient to satisfy the statement of basis requirement. Even if the statement of basis for any of the 21 coal-fired permits were procedurally flawed, it cannot be said that the permits do not comply with the requirements of the CAAPP or the Clean Air Act. Construing such minor deficiencies in the permitting process as a basis for finding the permits themselves deficient is specious and elevates form over substance.

Insignificant Activities

Comments were received regarding the requirements to which “insignificant activities” are subject. The CAAPP permit addresses these units in one distinct section. This is contrasted with emission units that are not insignificant; these are addressed in unit-specific sections of the CAAPP permit. Notwithstanding, “insignificant” emission units and “non-insignificant” emission units alike are subject to unit specific type conditions as well as general and standard conditions as more specifically set forth in the CAAPP permit.

Origin of Authority

Concern has been expressed for the manner by which the Illinois EPA has “specified” or “referenced” the origin of and authority for each permit term and condition. As a general matter, the Illinois EPA endeavored to provide the regulatory citation for requirements contained in the permit. Where none existed or as otherwise appropriate, the Illinois EPA made reference to the applicable statutory authority. To the extent a particular permit requirement bears no statutory or regulatory reference, the general statutory authority of

the Illinois EPA under the CAAPP is the basis for the requirement. This authority allows the Illinois EPA to include conditions in CAAPP permits as necessary to accomplish the purposes of the Act and is clearly articulated in condition 9.15.

Compliance Schedule

The Illinois EPA has received comments regarding the need to include a compliance schedule in the 21 coal-fired CAAPP permits pertinent to opacity, as well as New Source Review (NSR). These suggest that the sources are not in compliance with opacity and NSR requirements on an ongoing basis. These comments suggest that the failure to include a compliance schedule results in a permit that is deficient.

The test for the adequacy of a CAAPP permit in this regard is largely whether it contains conditions sufficient to assure compliance with all applicable requirements at the time of issuance.

The CAAPP requires the inclusion in an application for a CAAPP permit a compliance certification and, where the source is not in compliance with an applicable requirement at the time it submits the application to the Illinois EPA, a compliance schedule. The CAAPP also requires the inclusion of a compliance schedule where a CAAPP source is in violation of an applicable requirement at the time of permit issuance. However, the 21 CAAPP sources at issue certified compliance in their applications for CAAPP permit. Moreover, the public comments submitted for each of the plants do not support the inclusion of compliance schedules in the permits. Accordingly, compliance schedules are not included in any of these 21 CAAPP permits.

The Illinois EPA has also received comments regarding the need to conduct a searching assessment of the compliance status of these plants with the provisions pertaining to opacity, and possibly PM and NSR. However, the CAAPP is not intended to drive compliance investigation nor enforcement activity. To this end, these permits have been crafted to assure enforceability and specifically to assure the plants are not shielded from compliance with the opacity limitation, PM standard or NSR or NSR requirements.

A. Opacity and PM

Specific concern has been expressed whether the coal-fired boilers at the plants are fully compliant with the opacity limitations or PM standards and, if they are noncompliant, whether this triggers the requirement for inclusion of compliance schedules in the CAAPP permits. As recognized in these permits, the coal-fired boilers are subject to opacity and PM standards. As also recognized in the permits, the opacity and PM standards are separate requirements and compliance with these requirements must be separately addressed. This said, opacity is a means by which compliance with the PM standard may be evaluated. More specifically, opacity is a practical means for determining whether PM emissions control equipment, which for the coal-fired boilers at these plants are typically ESPs, are being properly maintained and effectively operated to comply with applicable PM standards. At the same time, while elevated or even excess

opacity may indicate that PM emissions could be increasing, elevated or increased opacity does not necessarily translate directly into noncompliance with the PM emissions standard. In other words, while opacity levels may be used to assess compliance and noncompliance with PM standards, opacity levels do not provide a precise gage for distinguishing between compliant and noncompliant operations.

Historical emissions testing of the coal-fired boilers for PM indicates PM emissions from the coal-fired boilers are typically well within the applicable standard. This is consistent with information that indicates that the ESPs at these plants as well as the baghouse at SIPCO and multi-clones at Soyland can generally ensure compliance with the PM standard even when a number of the fields in the ESP or compartments of the baghouse/multi-clones are not in service. In addition, neither the applications nor comments provide information evidencing noncompliance with the PM standard. Accordingly, a factual basis has not been presented upon which to include compliance schedules in these CAAPP permits related to PM emissions from the coal-fired boilers.

Contrary to concerns expressed by the public and claims by certain sources, the CAAPP permits require these plants to comply with the applicable opacity standards, even during malfunction/breakdown and startup. Quarterly opacity reports submitted to the Agency by the sources, though not part of the permit applications indicate that the coal-fired boilers do, at times, exhibit excess opacity. Comments suggest that this is sufficient to trigger the requirements for a compliance schedule. However, as previously noted, each source certified compliance. Additionally, information in the quarterly opacity reports, as have been resubmitted to the Illinois EPA with certain public comments, is not determinative of whether these exceedances constitute violations, much less signify violations. Even to the extent these exceedances rise to the level of a violation, past exceedances do not necessarily constitute a sufficient basis to include a compliance schedule in these permits.

While comments claim that the numbers of exceedances are significant, consideration must be given to the fact that opacity is measured and counted as 6-minute averages. As a result, the number of exceedances and aggregate duration of exceedance are not directly equivalent. For example, 10 exceedances constitute only one hour of potential non-compliance. Further, the statistics for the total numbers of exceedances at a plant do not accurately reflect the extent of exceedances by individual boilers. Moreover, available information indicates the past exceedances have only intermittently occurred and then abated, with no particular pattern of cause or frequency. Certainly for the vast majority of time, the coal-fired boilers comply with opacity limitations. That opacity exceedances may occur intermittently is contemplated by state and federal regulations and by federal guidance. Accordingly, these circumstances do not warrant the imposition of a compliance schedule on the basis of alleged opacity exceedances.

Notwithstanding the above, the Agency tailored the CAAPP permits with a particular emphasis on PM emissions so as to comprehensively assure compliance with applicable requirements, including opacity.

B. New Source Review

Concern has also been expressed for whether the coal-fired plants have triggered NSR, are now non-compliant with the requirements of NSR, require the inclusion of a compliance schedule in their respective CAAPP permits, and should be required to install control technology. Further concern has been expressed for the propriety of the CAAPP permits given the absence of compliance schedules.

As a threshold matter, all sources subject to the CAAPP must obtain a permit to operate that assures compliance by the source with all applicable requirements. As a general matter NSR requirements constitute applicable requirements. However, the application and public comments do not provide information of the type that is necessary as a matter of law, to show that NSR, as a matter of fact, has been triggered by activities at these plants and is an applicable requirement for any of these plants, much less whether NSR control technology requirements are applicable.

Congress established NSR as part of the 1977 Clean Air Act amendments and slightly modified it in the 1990 amendments. NSR is a pre-construction permitting program that generally serves two purposes. First, it ensures that air quality is appropriately protected from the addition of new emission units and modification of existing emission units. In areas with unhealthy air, NSR assures that major projects do not interfere with progress toward cleaner air. In areas with clean air, it assures maintenance of that air quality. Second, NSR requires that any large new or modified emission source will be as clean as possible and that appropriate improvements in pollution control occur concurrent with the “construction” activity.

The potential NSR issues posed at these plants are complex and investigation of these issues is not amenable to resolution during permitting. The issues require in depth case-specific assessment and resolution. The USEPA has assumed the lead in investigating NSR compliance in the coal-fired power plant industry as part of a national electric utility enforcement initiative. USEPA has alleged that a number of utilities have made non-routine repairs or other changes to coal-fired boilers and failed to undergo NSR apparently relying on the belief that the activities fell within exemptions under NSR. These allegations have yielded a great deal of litigation, which largely relates to the questions of whether the USEPA’s interpretation of what constitutes routine maintenance and repair constituted a change in policy perhaps necessitating rulemaking, and whether this interpretation was reasonable. The litigation is not yielding a clear or consistent answer to this question. Meanwhile, the federal NSR investigatory efforts are ongoing. Because the investigation and litigation continue, because the 21 sources certified compliance and included no compliance schedules in their respective applications for CAAPP permit, and because the records for the 21 CAAPP permits lack information clearly showing noncompliance with NSR, it is premature, unnecessary, and inappropriate to attempt to make NSR applicability determinations for these plants and to include compliance schedules in the CAAPP permits.

Secondarily, operating permits are generally not the appropriate means for addressing NSR concerns, much less operating permits issued under the CAAPP. As mentioned elsewhere in this document, CAAPP permitting is not intended to create and impose new emission control requirements. Even if CAAPP permitting were an appropriate place for investigating NSR, once determined applicable, the appropriate venue in which to address substantive requirements of NSR would be construction permitting. This is because determinations of appropriate control technology, as required by NSR, should be made as part of preconstruction approvals subject to the administrative procedures for preconstruction permitting. Accordingly, the concern about NSR expressed in comments is not appropriately addressed through imposition of compliance schedules in these CAAPP permits, and none of these permits contain such schedules.

Notwithstanding the above, at the request of USEPA, a placeholder was included in the CAAPP permit for Dynegy's Baldwin power plant, which was the subject of an enforcement action for NSR. Nonetheless, the Illinois EPA has inserted a placeholder in these CAAPP permits that are unaffected by the Dynegy Consent Decree. This placeholder has been replaced with the emission control requirements from the Consent Decree that has been entered into by Dynegy, USEPA and others to resolve this enforcement action. Significantly, this resolution occurred without a specific determination of the existence of NSR violations, much less the exact nature and scope of any such violations.

Agency Access to Records

Concerning access by the Illinois EPA to operational and emissions records at these plants, the Illinois EPA has the authority, to collect information in order to carry out the purposes of the Environmental Protection Act. The Illinois EPA is authorized also to include provisions in CAAPP permits that exercise its ability to collect relevant information. That certain records shall be copied and submitted to the Illinois EPA on some established reporting schedule, as set forth in the CAAPP permit is unquestioned. Further, any required records at a plant that the Illinois EPA elects to inspect and collect in person are to be furnished to the Illinois EPA. This said, the Illinois EPA's on-site inspection of records and written or verbal requests for copies of records will generally occur at reasonable times and be reasonable in nature and scope.

Reference Method 202 Testing

The Illinois EPA received comments from the sources regarding provisions in the permits addressing opacity and PM emissions. In response, PM emissions testing using Reference Methods 202 (in addition to Reference Method 5) is being required to measure condensable PM emissions that are not addressed with the Method 5 sampling train because they are still in a gaseous state. Reference Method 202 is one of the USEPA's Reference Methods incorporated into the Pollution Control Board's PM regulations at 35 IAC Part 212. Significantly, the use of Reference Method 202 is not limited by geographic area or regulatory applicability. The requirement for testing using both Methods 5 and 202 is authorized by Section 4(b) of the Environmental Protection Act.

Further, the inclusion of the requirement in the CAAPP permit is authorized by Section 39.5(7)(a) of the Act. The inclusion of this requirement in these CAAPP permits, which relates to full and complete quantification of emissions, does not alter the test measurements that are applicable for determining compliance with PM emissions standards and limitations, which generally do not include condensable PM emissions. In addition, since condensable PM emissions are not subject to emission standards, the permits allow use of alternative test methods for such measurements with approval of the Illinois EPA. This is necessary and appropriate to accommodate improvements to Method 202, which USEPA is currently pursuing. This addresses concerns expressed by sources about the technical adequacy of current Method 202. However, such concerns do not support forgoing such measurements entirely.

Inspections

In response to comments pertaining to opacity and PM emissions from material handling operations at the coal-fired power plants, which are potential sources of fugitive PM emissions, the permits require that periodic inspections of coal processing, coal handling, limestone handling and fly ash handling operations be performed by staff that are not involved in the day-to-day operation of these facilities. These inspections supplement and corroborate the observations and actions of the employees who operate these facilities on a daily basis.

The persons who may perform these periodic inspections are not required to possess specific skill sets or certifications. While these individuals must determine whether there are visible emissions from said operations, the observation of whether visible emissions are present is a matter for which training and certification is not required. As set forth in Reference Method 22, determinations of the existence of visible emissions can be made and recorded by a member of the general public. Likewise, the identification of accumulations of fines in the vicinity of a process does not require technical training. It merely requires that an individual be able to identify accumulations of coal dust or other material. This is also an action that could be performed by a member of the general public. Moreover, this is a reasonable requirement for the plants for which it is being applied, which are required to implement operating programs to minimize emissions of fugitive dust. At such plants, accumulations of fines can potentially contribute to emissions of fugitive dust, as they could become airborne in the wind.

While the CAAPP permits could specify that the individuals conducting inspections possess a certain level of experience with the type of facility being inspected or supervise the individuals actually operating a facility, the Illinois EPA does not believe that such qualifications are mandated, given the simplicity of the inspections that are being required. However, an appropriate qualification for the persons who perform these inspections is that they must be “independent” of the daily operation of the facility being inspected. For this purpose, a person “fresh” to the facility and removed from operational issues would arguably be best suited. However, the permit does not further restrict the persons a source may designate to perform these periodic inspections, beyond the requirement that they be removed from the day-to-day operation of the facilities that are

being inspected. CAAPP permits must include measures to assure compliance. Requiring that a person, other than the one responsible for daily operations, perform periodic inspections is fully consistent with this obligation.

Additionally, inspections are being required for gasoline storage tanks. Specifically, annual inspections are required to ensure compliance with applicable loading and control pipe requirements.

Fugitive Operating Program

Concern was expressed that conditions of the permits for certain plants, which requires these sources to operate “under the provisions of an operating program ... designed to significantly reduce fugitive particulate matter emissions,” contains vague language. Also, concern was expressed for a related provision that requires these sources to amend the program “from time to time” so that it is “current.” Additionally, concern was expressed for the related requirement that paved areas be cleaned on a “regular” basis. Lastly, concern was expressed for the Agency discretion relative to the review of fugitive PM operating programs.

The particular regulations that require these operating programs, as applicable to power plants, were part of Illinois’ State Implementation Plan for compliance with the National Ambient Air Quality Standards (NAAQS) for Total Suspended Particulate (TSP). The State of Illinois successfully complied with this NAAQS, which was subsequently replaced by the PM₁₀ NAAQS, and has now been supplemented by the PM_{2.5} NAAQS. Moreover, the relevant language found in the CAAPP permits is taken directly from the applicable State regulations. These regulations constitute applicable requirements. Thus, the regulatory language was necessarily and appropriately included in the CAAPP permits in the manner that it was.

The USEPA acknowledged the propriety of this language in its responses to petitions. Any attempt to further develop the language would risk contradiction with the underlying regulation, as the regulation provides flexibility to appropriately address the varying potential for emissions of fugitive dust at different sources, while providing sources flexibility in the methods used to control such emissions. Moreover, the expressed concerns are ill-founded as various elements of State regulations are included in the CAAPP permits and the public may independently pursue enforcement action for, among other things, the lack of a fugitive program, an inadequate fugitive program, the failure to adhere to a fugitive program, or fugitive emissions that are visible overhead beyond a source’s property line.

Mercury

Concern has been expressed that the CAAPP permits for these plants do not contain conditions for limiting, monitoring, measuring and reporting mercury emissions. The permits contain all “applicable requirements” related to mercury emissions. Also, control requirements for mercury emissions can be most effectively, adopted on an industry-wide

basis by law and rule, rather than source-specific action during CAAPP permitting. Further, as explained elsewhere in this document, CAAPP permits are not a means to enact new substantive emission control requirements. Notwithstanding, the Illinois EPA is requiring the plants to take reasonable actions to quantify their mercury emission and report their emissions on an annual basis. The Illinois EPA is authorized to obtain this information under Section 4(b) of the Environmental Protection Act. Further, the Illinois EPA, as also authorized, is including this as a reporting requirement in the CAAPP permits pursuant to Section 39.5(7)(a), (b), (e) and (f) of the Environmental Protection Act.

Alternative Fuels

Concern has been expressed for certain aspects of the operational flexibility afforded the plants, both generally and for certain plants and emission units. The provisions at issue have not circumvented nor failed to address or include applicable state or federal requirements, including but not limited to state requirements of local siting approval. Additionally, the concern that these coal-fired boilers would trigger local siting requirements when burning fuels other than coal, such as used oil or tires is generally misplaced.

The State of Illinois has a local siting approval process under State law for certain types of facilities. This siting requirement is in addition to local zoning and land use laws. Local siting approval is, in certain instances, a prerequisite for new development of pollution control facilities, as it must precede issuance of construction and development permits for such facilities.

Under scenarios authorized by any of these CAAPP permits and the provisions that are at issue, none of the coal-fired power plants would constitute a “new pollution control facility.” Even assuming arguendo that a plant would propose a change in its operation that would constitute a “new pollution control facility,” each CAAPP permit clearly articulates that the requisite permitting for a new pollution control facility must be obtained as appropriate. Regardless, siting is not part of the Illinois SIP, and could never constitute an “applicable requirement” under the Clean Air Act. Accordingly, as the USEPA concluded in its responses to petitions, local siting approval does not need to be further addressed in the CAAPP permits.

Concern was also expressed for the Illinois EPA’s failure to address Section 39(i) of the Environmental Protection Act prior to issuing CAAPP permits for these plants. Section 39(i) states in pertinent part that before issuing any RCRA permit, the Illinois EPA shall conduct an evaluation of the sources prior experience in waste management operations. 39(i) is not applicable in the context of the permitting determinations for these plants. The permits at issue are CAAPP permits not RCRA permits. Further, these sources are not asking for permits to become “new pollution control facilities or more specifically waste-storage or disposal sites, waste transfer or transporting operations, or waste incineration facilities.” In fact, the Illinois EPA has placed limitations in the permits expressly precluding the sources from becoming these types of operations. As such, the

requirements of Section 39(i) are not applicable and have appropriately not been addressed by the Illinois EPA.

These sources simply seek to maintain their existing ability to supplement coal with other fuel materials. This was possible under the previous operating permits for these plants and it is not appropriate for these CAAPP permits to eliminate this ability. This is particularly true as the coal-fired boilers at these plants are equipped with continuous monitors and the permits include provisions to assure compliance with applicable emission control requirements even when the coal supply is being supplemented with alternative fuels.

Malfunction/Breakdown and Startup

A. Continued Operations

The Illinois EPA has received comments regarding conditions within these CAAPP permits pertaining to operation with excess emissions during malfunction/breakdown and startups. More specifically, the comments suggest that the permits provide for “automatic exemptions” and that these exemptions are contrary to federal guidance on the topic. The comments seek clarification that excess emissions during malfunction/breakdown and startup constitute violations, that the permit conditions at best provide for an affirmative defense and that this defense would run only to actions for civil penalty, not technical or injunctive relief.

The coal-fired boilers at the coal-fired power plants and certain “secondary” emission units at particular power plants have obtained malfunction/ breakdown or startup authorization. For any plant that has received such authorization, the type of authorization (i.e., malfunction/breakdown or startup) it received, the units for which authorization has been received, and the conditions under, and manner in, which such authorization may be utilized are clearly set forth in the CAAPP permit. The origin of these authorizations is 35 IAC 201.149.

35 IAC 201.149 prohibits continued operation of an emission unit during malfunction or breakdown of the unit or associated air pollution control equipment, or startup of an emission unit or associated air pollution control equipment, if such operation would cause a violation of applicable emission standards or limitations absent express permit authorization (emphasis added). The further provisions pertaining to such permit authorization are set forth in 35 IAC Part 201, Subpart I. These provisions make clear that this process in Illinois for addressing malfunction/breakdown and startup is a two-step or multi-phase. The first step, as set forth at 35 IAC 201.261, consists of seeking authorization through a permit application to prospectively make a claim of malfunction/breakdown or startup. Pursuant to the provisions for malfunction/breakdown, the application shall include an explanation of why continued operation is necessary; the anticipated nature, quantity and duration of emissions; and measures that will be taken to minimize the quantity and duration of emissions. Pursuant to the applicable regulations, for startup, the application shall include a description of the

startup procedure, duration and frequencies of startups, type and quantity of emissions during startups, and efforts to minimize emissions, duration and frequency. These regulatory requirements are acknowledged by the CAAPP, pursuant to Section 39.5(5)(s) of the Environmental Protection Act. Absent a request for authorization in an application for a CAAPP permit and a grant of such authorization placed in a CAAPP permit issued by the permitting authority, a CAAPP source or other source of emissions in Illinois cannot legally make a claim of malfunction/breakdown or startup under Illinois regulations.

The approach taken by Illinois' regulation can be distinguished from and contrasted with that of the federal New Source Performance Standards (NSPS) regulations, under 40 CFR Part 60. These federal regulations address excess emissions during malfunction (and shutdown) or startup without the initial step present in Illinois' rules. This is because all sources are able to claim exclusion from otherwise applicable standards during a malfunction or startup event. The validity of the claims is then subject to scrutiny by USEPA and the state enforcement authority, as to whether they accept the source's claim that an incident should qualify for exemption. That is, that the excess emissions could not be readily prevented and were not contrary to good air pollution control practice on the part of the source. This case by case scrutiny can also occur under the approach in Illinois regulations, as the second step provided for in Illinois' regulations as described later. This "federal approach" is also present in these CAAPP permits, as certain emission units are subject to the NSPS. Emissions in excess of an NSPS limit that occur during malfunction or startup are governed by the NSPS approach to such incidents. The Illinois approach only applies to emission standards found in state air pollution control regulations at 35 IAC Subtitle B.

For those units for which sources sought malfunction/breakdown or startup authorization, the applications for CAAPP permits from these sources contained Forms 204-CAAPP and 203-CAAPP, respectively entitled Request To Continue To Operate During Malfunction And Breakdown and Request To Operate During Startup of Equipment. These forms seek the specific information required by the relevant state regulation. Accordingly, the sources sought malfunction/breakdown authorization as well as startup authorization in accordance with applicable Illinois' regulation. In turn, based on its review of the applications, the Illinois EPA granted authorization to the sources to make a claim of malfunction/breakdown or startup. That the CAAPP permits afford such authorization, does not equate to an "automatic exemption." The grant of such initial authorization is also fully consistent with long standing practice in Illinois permitting and enforcement with coal-fired power plants. On one hand, this practice recognizes that power plants provide an essential service, as they supply electricity that is essential to the public's well-being. In addition, these plants, due to their size and complexity may experience excess emissions due to events that cannot be readily anticipated or reasonably avoided. On the other hand, the operators of these coal-fired power plants are also fully aware that they may be held to account for any excess emissions that do occur.

The second phase of Illinois' process for operation with excess emissions during malfunction/breakdown or startup, as set forth at 35 IAC 201.262, addresses the showing

that must be made for a malfunction/breakdown or startup incident in order to make a viable claim of malfunction/breakdown or startup. Pursuant to the regulations, for malfunction/breakdown, this showing consists of a demonstration that operation was necessary to prevent injury to persons or severe damage to equipment, or was required to provide essential services. There are two elements to the required showing, “need” and “function” to make a viable claim. For startup, it shall consist of a demonstration that all reasonable efforts have been made to minimize emissions from the startup event, to minimize the duration of the event, and to minimize the frequency of such events. This showing can be evaluated to a limited degree based on past practice. However, this showing is also prospective, like the showing for malfunction/breakdown, as it relates to future events, which and whose exact circumstances are not known, and which, in fact, may or may not occur.

Notwithstanding these circumstances, the provisions in the CAAPP permits delineating the elements for a viable claim of malfunction/breakdown or startup, do not translate to an “automatic exemption.” They are better considered as laying the groundwork to avoid “misunderstandings” between a source and the Illinois EPA and others that enforce regulations, as to the actions that must occur during malfunction/breakdown and startup. This is particularly true for coal-fired power plants, which routinely operate for long periods of time without excess emissions due to malfunctions/breakdowns, readily correct most incidents in which excess emissions do occur and generally do not experience excess emissions during most startups.

Given the bi-furcated nature of the approach of Illinois’ regulations, the notion that these permits will provide for automatic exemptions is incorrect. The regulations and each CAAPP permit simply afford a source an opportunity, to which the source is entitled, to make a claim of malfunction/ breakdown or startup, with the viability of such claims subject to incident specific review by the USEPA and the state enforcement authority against the requisite showing. Notwithstanding any superficial impressions to the contrary, this is clearly embodied in the relevant rule. 35 IAC 201.265 clearly states that the granting of authorization to operate with excess emissions during a malfunction/breakdown or startup, violating an applicable state standard even if consistent with the terms and conditions of such authorization shall only constitute a prima facie defense to an enforcement action for a violation of regulations. The CAAPP permits within which malfunction/breakdown or startup authorization have been included do not provide shields from the state emission standards that may be violated during malfunction/breakdown or startup events. Rather, as applicable, and as set forth in the CAAPP permits, the plants are subject to the appropriate limitations or standards notwithstanding any malfunction/breakdown or startup authorization included within the permits. Thus, any excess emissions during these events would constitute violations potentially subject to enforcement and appropriate injunctive relief. Nothing in the applicable rules or permit conditions suggest otherwise.

The language in the permits, in places, may have been unclear on these issues. Accordingly, the Illinois EPA has revisited and reworked the language in the CAAPP permits where appropriate. The CAAPP permits now make clear what the sources have

generally “demonstrated” to this juncture, and what they generally will need to demonstrate relative to future malfunction/breakdown and startup events. The Illinois EPA has also simplified the provisions removing details that might suggest that these authorizations provide greater advance authorization for excess emissions than is possible under Illinois’ regulations. In particular, provisions with respect to the duration of malfunction/breakdown and startup events are removed because the duration of such events for which a source might appropriately make a claim cannot be definitively determined in advance. Provisions dealing with tracking the duration of malfunction/breakdown incidents has also been simplified, as triggered by comments from sources. In particular, sources objected to language that addressed the timing of malfunction/breakdown incidents in which emission exceedances were separated by periods of compliant operation. The language in question has been removed, since it is not needed if the duration of the incidents addressed by the authorization is not specified. Provisions for malfunction/breakdown for coal handling, coal processing and other process units that support the operation of the coal-fired boilers are linked to incidents that relate to the operation of the coal-fired boilers. Finally, the Illinois EPA has enhanced the provisions of the permits for recordkeeping and reporting associated with such events. These provisions have also been referenced in the malfunction/breakdown and startup authorization. These actions will facilitate closer scrutiny of these events, to assure that the sources take appropriate action to minimize excess emissions during these periods and respond appropriately when excess emissions do occur.

B. Malfunction Definition

The lack of a definition of malfunction/breakdown in these CAAPP permits was raised as a concern in public comment. Any such definition would potentially be inconsistent with the approach to malfunction/breakdown laid out in applicable regulations. This is because it could suggest that certain malfunction/breakdown events, by definition, qualify for special consideration so as to not constitute violations. Such a definition would only be necessary if the “preliminary authorization” for malfunction/breakdown claims in a permit also acted to shield a source from potential enforcement for such events, which is not the case. As indicated by USEPA in its responses to petitions, the lack of definition is of no affect on the CAAPP permits. As also noted by the USEPA, the term is common, and its plain meaning is clear. The Illinois EPA’s practices indicate that Illinois EPA’s implementation of the term malfunction/breakdown is consistent with federal regulations and guidance. The public comments on these permits do not indicate otherwise.

C. Malfunction Operating Log

As previously indicated, CAAPP permits are to include all “applicable requirements.” In public comment, concern was expressed for the failure to include a requirement for a signed, contemporaneous operating log for the actions undertaken by a source during malfunction/breakdown or startup. The CAAPP permits contain the “applicable requirements” including Illinois’ air pollution control regulations. That Illinois’

regulations do or do not meet the letter of a historic USEPA guidance document is a matter that has no relevance for these CAAPP permits. Moreover, in this instance, the concern is non-substantive, and all substantive elements are satisfied.

Malfunction/breakdown and startup events are subject to recordkeeping and reporting requirements. The required reports, and any other reports that the Agency may seek from a CAAPP source, are subject to certification requirements. Thus, while the records kept on site may not be certified, the information in those records when converted to written reports will be certified.

D. Requirement to Minimize Excess Emissions

In public comments and in petitions to USEPA, concern was expressed for the inclusion of the requirement to minimize emissions from startups by means including “other written instructions.” Additionally, concern was expressed for the use of the terms “timely” and “as soon as” in the requirement for “timely energization of the ESP as soon as can be safely accomplished.” Various changes were made to these CAAPP permits to improve clarity. At the same time, the language of concern was simply intended to address the manner in which plants must comply with the applicable regulatory requirement to minimize emissions during startup. In fact, the CAAPP obligates the Illinois EPA to include applicable requirements and other conditions that serve to assure compliance with the applicable requirements. Regarding the first concern, the permits simply reiterate the sources obligation to minimize emissions. It is commonly accepted that a basic technique for carrying out this obligation is through evaluations and planning that are memorialized in writing, as standardized procedures for startups. However, the development and utilization of such procedures does not relieve a source from the responsibility to review and update those procedures, particularly as circumstances change or procedures are found to be inadequate. Regarding the second concern, the permits list mandatory elements that sources must include in the “other written instructions” to minimize emissions. The language is simply meant to provide detail for the requirement at issue. Further, the Illinois EPA simply intends that a specific measure be undertaken at the earliest juncture that is technically feasible.

Concern was also expressed for the requirement that certain emission units other than coal-fired boilers are to minimize emissions in accordance with “established startup procedures.” In response to this comment, the Illinois EPA has excluded this term from the issued CAAPP permits. It has been replaced with a requirement that sources conduct startup in accordance with procedures that are developed and maintained to minimize emissions during startup, as already discussed.

Concern was also expressed for the phrases “reasonably be repaired” and “reasonable steps to minimize emissions.” The language of concern has not been included in the revised version of permits.

In summary, as previously addressed, there exists a regulatory obligation to minimize emissions during startup. In turn, there exists a statutory obligation to include this requirement in the CAAPP permit as a means to assure compliance. Any concern for the

language by which the Agency attempted to address the means to minimize emission is misplaced, as the base requirement is clear.

E. Malfunction Notification

Concern was expressed for the requirement to “notify the Illinois EPA’s regional office by telephone... as soon as possible during normal work hours for each incident of continued operation during malfunctions and breakdowns.” The time frame for reporting of malfunction/breakdown with excess emissions in the applicable regulations regarding reporting excess emissions during a malfunction or breakdown is “...immediately,” except if otherwise provided in the operating permit (emphasis added). Accordingly, the use of the terminology “as soon as possible” is not prohibited. Nevertheless, the Illinois EPA has altered the language in the permit. This is consistent with the USEPA’s responses to the petitions. That is, the phrase “as soon as possible...” has been replaced with “immediately.” The term “immediately” still embodies the concept of importance to the Illinois EPA, which is to require reporting but not to the detriment of actions to respond to a malfunction/breakdown incident. The Illinois EPA has also refined other incidental aspects of notification and reporting related to malfunction/breakdown incidents, based on specific consideration of the circumstances of the various emission units addressed by these permits.

F. Directives of the Illinois EPA

Concern was expressed for the requirements to comply with all directives of the Illinois EPA characterized as “reasonable.” The inclusion of the term “reasonable” is necessary and appropriate, as the USEPA recognized in its responses to the petitions, as it is taken verbatim from Illinois’ regulations at 35 IAC 201.263.

G. Extensions of Malfunction Authorization

Concern was expressed for the use of both the terms “extraordinary” and “unusual” when characterizing the circumstances under which malfunction/breakdown authorization may be extended. As previously explained, the Illinois EPA has not included this language in the issued permits. This is because the presence of these terms could be interpreted or construed as providing advance or concurrent authorization for the “acceptable” duration of certain malfunction/breakdown events.

Practical Enforceability of Conditions

A permit is enforceable as a practical matter where permit conditions establish a clear obligation on the source and where associated provisions for work practices, testing, monitoring, and recordkeeping reasonably provide for verification of compliance with such requirement(s). The following concerns were raised regarding the practical enforceability of certain conditions of the CAAPP permits.

A. Conditions that Reference Undefined Procedures and Documents.

1. Concern was expressed for the requirement to perform testing under “other operating conditions that are representative of normal conditions.” More specifically, the concern was that the terms are “vague and “undefined ” and allow too much “discretion.” Similarly, during the comment period and in petitions to the USEPA, concern was expressed for Condition 8.5, a General Permit Condition, as it requires testing be conducted using “standard test methods” but fails to define these methods. Additionally, concern was expressed for the requirement that certain emissions measurements be taken at the “appropriate” location in the stack of particular emission units. As a technical matter, such sampling locations are addressed by and would be established based on USEPA Reference Method 1 and the CAAPP permits expressly mandate use of USEPA’s Reference Methods for emission testing. The conditions under which a unit may operate are unit specific and may vary such that the precise conditions under which testing shall occur are best established in the time period shortly before a test event. Standard test methods and procedures are set forth in federal regulations and referenced in the State’s air pollution control regulations. The applicable test methods vary depending on the pollutant at issue and may vary depending on the unit, layout and operating conditions at issue. Furthermore, these sources are required to submit test plans, which are reviewed by the Illinois EPA to help ensure that testing is properly conducted. More specificity regarding test conditions or test methods or procedures in the CAAPP permits is needless and inappropriate, particularly as it would impede timely emission testing conducted under appropriate operating conditions. The USEPA has appropriately denied these concerns raised by petition.

2. During public comment and in petitions to the USEPA, concern was expressed for the inclusion of language in the CAAPP permits that is “practically unenforceable” as either “vague, subjective, or undefined.” Of particular concern were the phrases or terms “from time to time,” “current,” “regular,” and “immediately.” This language at issue is, in many instances, the precise language contained in applicable Illinois regulations. Further, greater precision can be needlessly limiting in certain instances. For example, from a regulatory perspective, where the written notice of an event is desired at the earliest juncture after an incident, it is preferable to use the term “immediately” rather than some set time frame which could be greater than necessary and actually serve to delay notice of the event. Moreover, at times, greater precision may require speculation about facts or scenarios that are not known or cannot be known or that have not occurred or may not occur.

Accordingly, the Illinois EPA does not consider the terms identified in these comments to be inappropriate as a categorical matter. In light of comments, the Illinois EPA reviewed the particular context in which these terms, and other similar terms, were used, to confirm they were appropriately used. The Illinois EPA did alter the CAAPP permits when a more fitting term was identified or a term could be avoided altogether.

3. Concern was expressed for the language at Condition 7.2.9(a) and (b) “which shall be kept up to date” when describing recordkeeping. The language is sufficiently clear on its face, as the terminology is applied to plans, procedures or lists that may

become outdated as circumstances at the plants change. The recordkeeping obligation is ongoing. The USEPA denied this allegation in its responses to petitions.

B. Permit Conditions That Use “Reasonable” or “Reasonably”

During public comment and in petitions to the USEPA, concern was expressed for the use of the term “reasonable” or “reasonably.” The Illinois EPA does not consider such terms categorically inappropriate. Rather, the Illinois EPA reviewed the context within which the terms were used to determine their propriety, deleting or substituting the terms where appropriate. For example, concern was expressed for the requirement that a source implement “measures that minimize visible emissions of particulate matter and provide a reasonable assurance of compliance.” Upon reconsideration, the Illinois EPA agrees that the inclusion of the term “reasonable,” as it modifies the assurance of compliance that is required for measures that must be undertaken, was unnecessary, and inappropriate in this particular context. The term “reasonable” has not been included in the issued permits.

C. Conditions That Allow Agency Discretion

1. Concern was expressed for the fact that the permit allowed the Illinois EPA to “waive” the requirements for testing PM emissions. However, separate from the provision at issue, the CAAPP permits require appropriate periodic testing for PM emissions from the coal-fired boilers. The particular provision of concern dealt with the performance of “extra” tests if a coal-fired boiler operated at significantly greater load than the load during the prior PM tests. Where emissions are well within the applicable emissions limit and a boiler operates at only a slightly higher load, such extra testing may not be worthwhile, but this determination would best be made on a case-by-case basis. At the same time, boiler load during PM emission testing is important and it is best addressed explicitly, rather than in other general provisions of the permit that provide for additional PM testing to be performed upon request from the Illinois EPA.

Waiver language is no longer included in the provision for these extra PM tests. At the same time, to compensate for this action, the criteria for such testing has been adjusted, increasing the time period associated with “high load” operations (generally 2 percent higher than the load during prior testing) from 24 to 30 hours in a calendar quarter. This accounts for the “extra” tests that might arguably have been waived for these plants.

2. Concern was expressed for the condition that provides for Illinois EPA review and approval of a protocol for PM emissions testing of the coal-fired boiler. The requirement for review and approval of such protocol is consistent with the historical practices of both the state regulatory agencies and the USEPA. The purpose of the protocol, and of its receipt and review prior to testing, is to ensure that emissions testing occurs under appropriate conditions, utilizing appropriate test methods and procedures, and ensuring the necessary operational information is recorded during testing. The complexity of testing, the possibility of changing circumstances at the source, and the range of experience of testing services necessitate this exchange prior to testing. The

requirement is wholly consistent with Illinois law and is not an inappropriate exercise of discretion.

3. Concern was raised for whether the language in Condition 7.2.6(a) “which states that a determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or the USEPA...” is practically enforceable. Where this language is used in these permits, it repeats essentially verbatim, regulatory language that is applicable to particular units that are subject to the NSPS, pursuant to 40 CFR 60.11(d).

D. Conditions That Contain “Vague” Language

1. Condition 5.2.7 of the permits addresses the episode action plan. Concern was expressed relative to the definition and content of the plan as well as its terms and time frame implementation. The episode action plan is a requirement of limited application. Nonetheless, such plans are required of these sources by 35 IAC Part 244, and as such, constitute an “applicable requirement.” Accordingly, it is appropriate to include the relevant provisions of the applicable regulations in the CAAPP permits. However, simply because these sources are required to prepare and operate in accordance with a specific plan or procedure does not make the contents of such plans or procedures subject to review as part of CAAPP permitting. In addition, while power plants are required to possess episode action plans, the plans would only be implemented upon the highly improbable issuance of air pollution advisories under the regulations for air pollution episodes. To “define” the plan beyond the language of the relevant State regulations would require speculation about facts or scenarios that are not known, cannot be known, have not occurred, and given Illinois’ history, are unlikely to occur.

2. In public comment, concern was expressed for the use of the term “deviation” in the context of what a CAAPP source is obligated to report. Condition 5.7.1 sets forth a general, source-wide reporting requirement. The term “deviation” is commonly used. Its meaning is clear, a CAAPP source is to report “variance” from the requirements of its permit. Neither the CAAPP nor 40 CFR Part 70 contain a specific definition of the term. Further, definition or refinement of the term would not facilitate implementation of the requirements of the CAAPP for reporting of deviations. In part, this is because a “deviation” does not, in every instance, equate to a violation. In this regard, deviation reporting is more encompassing than violation reporting. There is no evidence in the public comments for these permits that the term “deviation” is used in a fashion that is contrary to the CAAPP. Appropriately, USEPA denied this comment on Petition.

By way of further example, sources claim in their comments that the CAAPP permits unduly expanded the meaning of the term “deviation.” They pointed to certain instances, where they would be required to provide notification when emissions may have exceeded an applicable limit, as well as when the limit has been exceeded. Such requirements are imposed in circumstances where available information for an emission unit may not authoritatively show compliance, such that the exact compliance status is unknown. This

could occur under atypical operating conditions, most commonly malfunction/breakdown. The ability to make an authoritative compliance determination could be prevented by the lack of a qualified opacity observer pursuant to Reference Method 9. Even if such an observer were available, formal opacity observations might not be possible given the time of day or weather conditions. Other available operating information for a unit may also not be sufficient for an authoritative finding of compliance or noncompliance. One is simply presented with an incident where compliance status of a unit is uncertain or suspect. In the provisions at issue, such incidents are appropriately treated as deviations. That is, the source is unable to confirm compliance under operating conditions under which emissions may have exceeded an applicable standard. As such, the incident should qualify as a deviation and be reported. This will allow further investigation to occur by the Illinois EPA, as needed. At the same time, this sort of a deviation cannot be equated with a violation, at least pending further investigation.

3. Concern was expressed for a unit specific condition that describes the monitoring requirements for each coal-fired boiler and attempts to delineate the precise monitoring requirements that are applicable to the sources. To guard against the potential ramifications of inconsistency between the permit language and the language of federal regulations for monitoring under the Acid Rain Program, the Illinois EPA inserted the provision that Part 75 requirements shall prevail in the event of conflicts. No information has been introduced into the record indicating how this condition is contrary to the legal requirements. In fact, the language of concern is not “vague” but rather explanatory. It is also supported by Section 39.5(17) of the Environmental Protection Act, which provides that the Illinois EPA “should not include or implement any measure which would interfere with or modify the requirements of Title IV of the Clean Air Act or regulation promulgated there under.” Appropriately, USEPA denied this concern in responses to petitions.

4. Concern existed for the form of the condition dealing with the submittal of information related to operation of NO_x emissions monitoring. However, the approach in this provision mirrors the approach in the federal NSPS. In addition, the language that the commenters suggest constitutes examples, in fact constitutes reporting requirements. Specifically, reporting of detailed operational information is triggered upon request of the Illinois EPA or where the continuous monitoring system down time exceeds five percent of the total operating time for a boiler.

5. Sections 7.2, 7.3, and 7.4 of the permits commonly address coal handling, coal processing and fly ash handling, respectively. Due to the nature of units at certain plants, these operations may be found in other sections in certain permits or may be nonexistent, when not present at a particular plant. Among other things, each section requires work practices or control measures, to minimize visible emissions of PM from the respective operations and to assure compliance with the applicable emission standards.

Concern has been expressed for the use of the language “such as” in describing the control measures to be utilized. More specifically, the concern is that the listed control

measures are examples not requirements and that control measures may not actually be required at each of the plants for their coal-handling units. The unit-specific conditions as a whole clearly articulate the units and the control measures, the applicable emission limitations and standards, and the inspection, recordkeeping and reporting requirements to ensure compliance with applicable emissions limitations and standards. In fact, the sources possess control measures and are subject to the requirement to utilize such measures to minimize visible emissions. “Such as” was utilized so that it was clear that the control measures necessary to minimize visible emissions are not limited to those that are listed in the permit. Together, the conditions are clear and practically enforceable, as echoed by USEPA in its responses to petitions.

A related concern was expressed that the permits fail to require specific control measures beyond what is currently being implemented, which “could be none at all.” First, as previously stated, the permit identifies the measures that the sources currently possess. Not one CAAPP source is lacking control measures for these operations. Second, any control equipment beyond that which a source currently possesses would require a construction permit. Further, at this juncture, the Illinois EPA has no basis to require additional measures or equipment as there exists no evidence that existing measures are insufficient to meet applicable regulatory requirements. Finally, a detailed recitation of specific control measures is not required in a CAAPP permit, as a CAAPP permit delineates applicable requirements and includes provisions for periodic monitoring (work practices, testing, instrumental monitoring, and recordkeeping) that are adequate to verify compliance with applicable requirements.

6. Concerns were expressed for conditions, which dealt with the final required element in the records that sources must keep for the required periodic inspections of material handling/processing operations. Due to concerns for the intent of these conditions, as expressed by the public and sources, the Illinois EPA has included revised language in the permits. Where the language once read, in pertinent part, “summary of compliance compared to established control measures,” it now reads “a summary of the observed implementation or status of actual control measures as compared to the established control measures.” The purpose of the condition is to have the individual conducting an inspection of the particular material handling or the process operations to summarize his or her detailed findings with respect to what is actually being done for control of dust from particular operations, as compared to what should be being done for control of dust.

7. Certain conditions utilize the term “good air pollution control practice.” This term is a common regulatory term. For an example, refer to 40 CFR 60.11(d). Generally, it means those measures, practices or procedures to diagnose and prevent malfunctions and to ensure the emission unit operates as designed, and is maintained and operated in practice so as to assure compliance. Appropriately, the USEPA denied this concern on petition.

8. Concern was expressed for the adequacy of the standard permit language at Condition 9.8 pertaining to the CAAPP annual compliance certification. First, for the

annual compliance certification as properly noted in the USEPA's responses to petitions, the language is sufficiently clear that the filing deadline is May 1 of the year following the calendar year for which the report is being prepared. Second, as expressed by the USEPA, Condition 9.8 is wholly consistent with the statutory language. Moreover, it is quite clear that CAAPP annual compliance certifications are to include a source's compliance status condition-by-condition, stating for each condition whether compliance was continuous or intermittent and indicating the method(s) used for this determination.

Periodic Monitoring

Concern was expressed that the provisions for certain emission units at these plants, other than the coal-fired boilers, fail to require emissions monitoring or emissions testing and thus, fail to satisfy requirements for periodic monitoring. CAAPP permits include emissions testing, emissions monitoring, recordkeeping and reporting requirements to assure emission units comply with applicable emission control requirements.

Significantly, these requirements need not be identical for each emission unit. Rather, various combinations of the requirements will suffice depending on the nature of a unit and the emission control requirements to which it is subject. What constitutes sufficient monitoring is left to the judgment of the permitting authority. The test for the adequacy of these "periodic monitoring" provision(s) is whether they assure compliance with relevant permit conditions.

As a more general matter, the Illinois EPA has reviewed the provisions of these permits to ensure that they include adequate periodic monitoring. This review has resulted in the inclusion of additional work practices, testing requirements and recordkeeping requirements in the permits for certain emission units. For example, to address the CO emission standard for boilers, the permits now require periodic combustion tune-ups as part of the routine operation of the boilers. These tune-ups, which the Illinois EPA believes are already occurring at most, if not all plants, will serve to maintain CO emissions well below the standard. These work practice requirements are accompanied by changes to testing requirements including new requirements for emission testing upon request by the Illinois EPA for boilers for which requirements were not previously made explicit. As a further example, to address compliance with the visible emissions requirements, the Illinois EPA is requiring annual opacity testing for coal handling and processing, ash handling, and limestone handling and processing. Additionally, Illinois EPA is requiring work practices, inspections and record keeping. Collectively, these requirements constitute sufficient periodic monitoring. Specifically, the work practices are to occur continually; the inspections will occur frequently. The required record keeping is frequent and extensive. These requirements, in conjunction with annual opacity testing, adequately assure compliance.

Similarly, concern was expressed for provisions that address the support engines at certain sources, which are subject to the opacity and SO₂ emission standards. The specific concern was that the provisions failed to include "periodic monitoring" provisions sufficient to verify the Permittee's compliance with these standards. Specific provisions for Reference Method 9 testing are now included to address the timing of

measurements to verify compliance with the opacity limitation. In addition, the provisions for sampling of the sulfur content of the distillate oil required to demonstrate compliance with the SO₂ standard have been further developed. This testing coupled with appropriate recordkeeping is both adequate and sufficient periodic monitoring to address compliance with the opacity limitation and SO₂ emission standard for the units at issue.

Several sources have commented that the periodic monitoring requirements contained within the CAAPP permits exceed that which is necessary to satisfy statutory requirements and are overly burdensome. In fact, sources have inappropriately questioned the breadth of and authority for a number of the requirements.

As a general matter and as previously mentioned, the purpose of periodic monitoring is to assure compliance. As the requirements at issue are intended to assure compliance, these requirements simply do not exceed the Illinois EPA's authority under CAAPP. Further, under any circumstance, the requirements of concern fall within the Agency's general statutory authorization to further the purposes of the Act.

The Illinois EPA acknowledges the sources are subject to a number of regulatory provisions requiring continuous monitoring systems (CMS), and thus possess CMS on the coal-fired boilers for a number of pollutants. The existence of these CMS was factored into the periodic monitoring analysis for the plants. The recordkeeping and reporting is driven by the existence or lack of CMS, and, of necessity, requires records and more frequent reporting where no CMS exists. For example, as there exist no CMS for PM at these plants, deviations from these standards require reporting within 15 to 30 days, depending on the nature of the unit. This is in contrast with SO₂, NO_x, and opacity for which CMS are in place on the coal-fired boilers and for which deviations are generally to be reported quarterly.

The nature of the periodic monitoring is also related to the degree of operational flexibility provided by the permits. For example, the permits allow the coal-fired boilers that also have the ability to burn oil or gas as a principal fuel, to switch to operation with these fuels, either in whole or in part. This is reasonable, as it allows flexibility in operation, allowing sources to respond to operational issues and fuel costs. It is also required as such sources have addressed these alternative modes of operation in their applications. However, it is also appropriate for such sources to notify the Illinois EPA of such changes. This should preferably occur a week in advance or concurrent with the change, if it was not anticipated. This is appropriate as such changes may have other ramifications for operation of the plants for which the Illinois EPA should be aware. Certainly, switching back to coal, after such an alternative mode of operation, warrants potential review by the Illinois EPA to confirm that systems are fully operational. Likewise, switching away from coal may have implications for the level of control that must be achieved. In such circumstances, it would be wholly inappropriate for the Illinois EPA to allow such operational changes to be reported in the quarterly report, which depending on timing, could be anywhere between 30 to over 100 days after the change in operation.

Another example of divergent views on what is and is not appropriately required by the permit pertains to quarterly CMS reports under the Acid Rain Program. The sources request that the CAAPP permits not require the submittal to the Illinois EPA of those reports required to be submitted to USEPA under the Acid Rain Program. As a threshold matter, the requirement for reporting this information to the Illinois EPA is clearly consistent with and authorized by the CAAPP. Secondly, as the information is provided to USEPA in electronic form, submittal to Illinois EPA can hardly be characterized as burdensome. In addition, the comments gloss over a significant fact; the requirement for submittal of the information to the Illinois EPA is an applicable requirement which cannot be avoided and from which the source cannot be shielded.

In sum, consistent with its statutory authority and based on a reasoned analysis, the Illinois EPA has worked to craft conditions that assure compliance in a manner that is commensurate with the emission unit and regulatory requirements at issue.

Prompt Reporting

Concern exists for whether certain reporting provisions satisfy the statutory prompt reporting requirement. More specifically, concern was expressed for a number of conditions that allow reporting of certain “deviations” with quarterly reports for the boilers.

The CAAPP requires the inclusion of requirements for the “prompt reporting” of “deviations” from permit requirements. Neither the CAAPP nor the federal rules upon which the CAAPP is based and was approved by USEPA define the term prompt. Rather, 40 CFR Part 70.6(a)(3)(iii)(B) intended that the term have flexibility in application and that the permitting authority define the term relative to the “applicable requirement” at issue, the “type of deviations likely to occur” for which reporting may be required, and the period in which the deviation may need to be reported.

To this end, “prompt reporting” may be appropriately addressed generally or specifically. The CAAPP and these particular permits include general and unit-specific reporting requirements. Where the permit includes unit-specific reporting this is generally in lieu of, but may be in addition to, the general reporting requirement. The precise reporting schemes are case-specific and delineated for the different emission units and groups of units in the CAAPP permit for each plant. The conditions at issue require reporting of deviation no less frequently than quarterly, and, in certain instances, within 30 or 15 days of an incident.

The USEPA is on record in other matters and in responses to petitions as having determined that reporting on a quarterly basis can satisfy the prompt reporting requirement. This timing for deviation reporting is considered by the Illinois EPA when a source or emission units at a source warrant quarterly reporting to address operation, independent of the occurrence of any deviations. This is the case for these plants, as they

are required to perform continuous monitoring for the coal-fired boilers, for which quarterly monitoring reports are appropriate. Accordingly, reporting of deviations has generally been combined in, or coordinated with these quarterly reports so that the overall performance of the plants can be reviewed in a comprehensive fashion. This will allow a more effective and efficient review of the overall performance of the source by the Illinois EPA and other interested parties, as well as by the source itself.

At the same time, there are certain deviations for which more prompt reporting is still appropriate. These are deviations for which individual attention or concern may be warranted by the Illinois EPA, USEPA, and other interested parties. For these CAAPP permits, such attention has been placed primarily on deviations that could represent substantial violations of applicable emission standards or lapses in control measures at the source. For these purposes, depending on the deviation, immediate notification may be required and proceeded by a follow-up report submitted within 15 days, during which time the source may further assess the deviation and prepare its detailed plan of corrective action. Alternatively, notification for certain deviations may simply be required in 30 days.

Notwithstanding, in response to public comments and the USEPA's responses to petitions, the Illinois EPA has enhanced certain reporting requirements in the permits for these power plants. The reporting requirements, as revised, have already been generally described in the Section of this Responsiveness Summary entitled General Explanation of Coal-Fired Power Plant Permits.

Permit Shield

The extent of a permit shield provided by these CAAPP permits is generally addressed in Condition 8.1. This language is consistent with the CAAPP. Additionally, the extent of any Permit Shield is more specifically addressed by other conditions in the CAAPP permits that identify the applicable or nonapplicable regulations and control requirements to which the sources are or are not subject. A CAAPP permit does not provide any permit shield for regulations or requirements that are not addressed in the CAAPP permits. This approach is consistent with the CAAPP. Accordingly, the USEPA has appropriately determined in responses to petitions that the language of Condition 8.1 satisfy the requisite requirements.

Moreover, the Illinois EPA has further reviewed the non-applicability provisions in the CAAPP permits to remove or revise provisions that could be misinterpreted as providing a permit shield. Most significantly, the Illinois EPA has removed provisions stating the permits are based on certain emission units not being subject to NSPS that only apply to new, modified or reconstructed emission units. This is because these statements could be interpreted as a determination by the Illinois EPA that such units are not new, or reconstructed units. In fact, no such determination was made by the Illinois EPA for such units. The provisions in question merely reiterated representations by the sources in the CAAPP applications regarding applicable rules. The provisions at issue were intended to

memorialize the basis upon which the permits were prepared, and make clear that the source was not shielded from non-applicable requirements for new, modified or reconstructed units, if such requirements were in actual fact applicable to a unit. While sources have asked in their comments that such provisions be restored to the permits, these requests were not accompanied by the detailed documentation necessary to support their request.

Standard Permit Conditions

1. A comment was provided that Standard Permit Condition 9.2.3, entitled Duty to Cease Operation was incomplete. The June 2003 Draft CAAPP permits inadvertently failed to include the entire state statutory provision as set forth in the CAAPP in this condition. However, this condition was revised to address the concern. The revision appeared in the October 2003 proposed permits, subsequent versions of the CAAPP permits and the final CAAPP permits.

2. Public comment was received regarding Standard Permit Condition 9.12.1 entitled Permit Actions. The Illinois EPA had failed to inclusively recite the state statutory provision in the June and October 2003 versions of the CAAPP permits, but not subsequent versions of the permit.

3. Concerns were expressed for Standard Permit Condition 9.12.2(b) entitled reopening and revision because it omits the parenthetical and last sentence of Section 39.5(15)(a)(ii) of the Environmental Protection Act, which reads in full: “Additional requirements (including excess emissions requirements) become applicable to an affected source for acid deposition under the acid rain requirement. Excess emissions offset plans shall be deemed to be incorporated into the permit upon approval by USEPA.” The first of the two sentences appears in proposed CAAPP permits. However, the second sentence does not reflect the relevant procedure and has not been incorporated. As appropriately reflected in the USEPA’s responses to petitions, the failure to include this language is of no consequence, as it describes circumstances in which no changes to a CAAPP are needed.

4. Concern was expressed for Standard Permit Condition 9.10.2 entitled Emergency Provision. More specifically, concern was expressed for the use of the term “normally” and the use of examples in condition 9.10.2(a)(i) of the CAAPP permits. This term and the examples appeared in the June 2003 draft permits. However, the term and the examples have not appeared in the condition in the October 2003, later versions of the CAAPP permit and the final CAAPP permits.

Additionally, concern was expressed for the failure to address the burden of proof relative to this provision. The burden of proof is the obligation in a particular context to establish or defend a position. This burden exists as a matter of law. It is not an “applicable requirement” for CAAPP permitting purposes. That the Illinois EPA has not addressed this issue in the condition at issue or any other condition in the CAAPP permits is of no consequence.

Permit Conditions That Do Not Comply with State Regulations

1. Concern was expressed for the failure to directly address certain reporting requirements found in state regulations. For example, for the coal-fired boilers, reporting requirement found at 35 IAC 217 was not expressly included within the CAAPP permits. Rather, this reporting requirement was satisfied by a reporting requirement in the CAAPP permit set forth in general source-wide reporting. In addition, as the particular requirement is triggered by the formal request from the Illinois EPA sent to a source, soliciting copies of records, the requirement does not need to be included in the CAAPP permit to be implemented by the Illinois EPA. Nonetheless, given the concerns expressed in public comments, the Illinois EPA has explicitly included the relevant reporting requirement in the permits.

2. Concern was expressed that several conditions failed to include requirements in 35 IAC Part 201, Subpart L. First, as indicated in the October 2003 proposed permits and subsequent versions of the permits, Part 201 Subpart L does not pertain to SO₂ and NO_x. Rather, the NSPS reporting requirements, by way of the federal Acid Rain Program, are the applicable requirements. The result is that these plants with one exception, Soyland Power, are not subject to requirements of Subpart L, as Part 201 Subpart L expressly excludes sources that are subject to NSPS monitoring. Any concern for the language of these regulations or for the failure to include these regulations is misplaced as a legal matter as the provisions of concern are not applicable requirements. They are also misplaced technically as the NSPS and the Acid Rain Program represent more recent and advanced requirements for monitoring than those found in 35 IAC Part 201, Subpart L. This said, the Illinois EPA has drawn upon certain elements of 35 IAC 201.405 and the NSPS to delineate certain information that quarterly opacity reports must contain. However, any utilization of the state regulatory language is simply a means under the authority of CAAPP permitting to clarify the obligations on the source.

Credible Evidence

Concerns were raised in public comment and in petitions to the USEPA that the CAAPP permits contain conditions that limit the use of credible evidence. Concern was further expressed that the standard credible evidence provision at Condition 9.1.3 insufficiently addresses the concern.

However, as properly noted by USEPA in its responses to petitions, these concerns are ill-founded. Contrary to the expressed concerns, where the permit identifies the means by which compliance with particular emissions limits or standards or other requirements are to be measured, these identified means are not the exclusive manner by which compliance may be measured. This is true whether the permit lists one, several or even all known compliance measures. Nowhere in the source wide, unit-specific, or standard conditions in these permits does it state an exclusive means for determining compliance. In fact, the standard condition makes clear that notwithstanding any compliance measures or procedures set forth within other portions of the permit, all available means of

determining compliance may be utilized consistent with relevant legal principles and the technical issues posed with use of credible evidence.

Particular concern was expressed for a condition on the coal-fired boilers, which provides that continuous emissions monitoring shall be used to demonstrate compliance with the applicable standard. However, as discussed with respect to “periodic monitoring” CAAPP permits must include provisions by which compliance with applicable control requirements may be verified (See also Section 39.5(7)(p)(v)(B) of the Environmental Protection Act). In addition, concern was expressed with respect to that condition, which indicated that, for the boilers, compliance with the CO limitation is assumed to be inherent, or “expected,” under typical operating conditions. While the Agency maintains its technical position, it has deleted this explanatory note.

Environmental Justice

Notwithstanding the uncertain relation between EJ issues and Title V permitting, during the permitting of these coal-fired power plants, the Illinois EPA has responded to the issue of Environmental Justice in several ways. As part of the public comment period, the Illinois EPA held six public hearings across the state on the draft permits for these plants to facilitate input into the permitting process by the public. Three of the hearings, were held in areas in which a high percentage of the population is Hispanic; the Agency facilitated input from Spanish-speaking individuals. In addition, separate hearings were held for Midwest Generation LLC’s Crawford and Fisk plants, which are located approximately four miles apart in the City of Chicago, to accommodate input from the residents in the communities near each of these plants.

In response to public comments, the Illinois EPA considered the impacts of the plants on the local communities to determine whether certain plants might be contributing to disparate impacts on minority or low-income communities, as relevant for a formal evaluation of environmental justice. This review identified two plants as being of possible concern, Crawford and Fisk, in the City of Chicago, due to their filterable PM emissions. This review did not identify impacts from the coal-fired boilers on local neighborhoods that were significantly higher than PM impacts on areas further away, so as to be disparate from a geographical perspective. However, this review did identify maximum impacts, based on allowable PM emission rates from the boilers that were more than de minimis. These impacts did not occur in the local neighborhoods, but at points beyond the local neighborhoods that are several miles away from the plants. This suggests a general concern for contribution to PM air quality, but not a particular concern as related to environmental justice. For criteria air pollutants other than PM, these plants generally contribute to air quality in the Chicago metropolitan area and the region, but disparate impacts on the local neighborhood should not be expected. In addition, these impacts are associated principally with SO₂ and NO_x emissions. The emissions of these pollutants are being addressed by USEPA’s new Clean Air Interstate Rule (CAIR), which comprehensively addresses SO₂ and NO_x emissions from power plants.

The Illinois EPA also reviewed the provisions of the permits for these plants to identify possible enhancements to the provisions for control of PM emissions from the coal-fired boilers. The extent of such potential enhancements was limited, because, as already explained, CAAPP permits are intended to address existing regulations and requirements for control of emissions, not to create new control requirements. Thus these permits should not and do not set limits for PM emissions that are lower than the limits that apply under existing regulations.

However, the Illinois EPA did identify two ways in which the compliance procedures for PM emissions from the boilers could be crafted for these two plants, and for power plants in general to focus attention on particulate matter emissions. First, the timing of the initial testing of PM emissions required by the permit is staged, with testing of the Fisk and Crawford plants to occur first. Testing must occur within 180 days of the effectiveness of the testing requirement, which is the minimum amount of time needed to allow testing to be performed during cooler and thus at the maximum firing rate, as is also required during such emission testing. Second, the schedule for subsequent routine testing for PM is related to the measured test results. The base interval between required tests is nominally 12 months. (The permit specifies that these tests must be no more than 15 months apart, providing the additional three months as a contingency for unforeseen events that delay testing, such as an unexpected outage of a boiler.) The interval between these periodic tests becomes longer if the margin of compliance with the applicable PM limit is more than 20 percent. This approach to testing not only ensures compliance via periodic testing but also creates a direct incentive for sources to control emissions to a level that is significantly below the applicable regulatory limit.

A final, less direct action taken for PM emissions was the expansion of the provisions for testing. The permits require measurements of “condensable” as well as filterable PM emissions from the coal-fired boilers. Historically only filterable PM testing was required of Illinois coal-fired sources. Regulatorily, only filterable PM emissions need to be measured. This testing requirement was imposed on the coal-fired power plants in the CAAPP permits to improve the quality of the PM emission data that is available for these plants. This is of particular value, as it should assist in conducting assessments of the air quality impacts of power plants, including the Illinois EPA’s development of an attainment strategy for PM_{2.5} emissions for the Chicago metropolitan area and the Metro East area. The requirement to measure condensable PM emissions was imposed on all plants because this data is also needed for downstate plants that contribute to background air quality in urban areas. USEPA has adopted reference method 202 for conducting such measurements. While USEPA is currently working to improve Method 202, to increase its accuracy, these efforts do not prevent or invalidate the use of the current method.

Health Effects

Concern has been expressed for the effect of emissions from the coal-fired plants on public health. As such, the suggestion has been made that the Illinois EPA should limit emissions to levels below those that are required by current regulations and force the

sources to install additional control equipment. As stated elsewhere, the purpose of the CAAPP is to assure compliance with “applicable requirements.” The CAAPP does not authorize a state to impose substantive new requirements. This is particularly true where there exists no basis to do so. The applications and comments for these permits lack the information that could form the basis for the requested measures. What commentors seek are newer, more stringent regulations. This is simply not something that would be accomplished through permitting, much less CAAPP permitting. Rather, this is something that must be accomplished by adoption of new laws or regulations, on either the state or national level, as is occurring. This is particularly true as power plants contribute to air quality on a regional level, with long range transport, such meaningful reduction in the contribution of power plants to air quality also requires control programs that apply on a regional level.

Opacity

A. 8-Minute Aggregate Provision

Concern has been expressed by the sources that the permits inappropriately restrict a source’s ability to rely on 35 IAC 212.123(b), a provision of the opacity rule that allows for opacity levels higher than the generally applicable limit of 30 percent in certain narrowly defined circumstances. This is because the permits require sources to give advance notice of changes in the methodology that will be used to show opacity levels qualify for this provision. This notification requirement is appropriate given the nature of the exclusion, the means by which opacity is measured, and historic experience with this rule. While the permit appropriately develops the nature of the information that sources will have to possess to take advantage of this provision, this elaboration does not assure that a source understands and is acting appropriately to demonstrate that it qualifies for this provision. In particular, the provision requires a determination of opacity over a period of 8 minutes, which is not supported by the 6-minute averages routinely used to determine opacity. It also requires coordination of opacity data from all the emission units at most of the plants, rather than the consideration of opacity data on an individual unit basis. As such, the verification of the adequacy of a source’s methodology is best reviewed on an individualized basis when action is actually occurring. In this regard, it is similar to the performance of emission testing, for which a protocol is warranted, notwithstanding the extensive regulations that set forth the procedures to be used for testing emissions.

B. Applicability of Opacity Limitation

Certain sources claim that certain emission units are fugitive emission units, rather than process emission units, so as to be excluded from the state opacity limitation, at 35 IAC 212.123. Nothing in the State’s air pollution control regulations states that the opacity limitation does not apply to fugitive emission units. The regulations at issue broadly apply to “emission units.” Moreover, while not applicable to these power plants, elsewhere in the State’s air pollution control regulations, opacity limitations are specifically set for fugitive particulate matter emissions at marine terminals, roadways, parking lots and storage piles. It is improper to suggest that the only limitation applicable

to the units at issue is 35 IAC 212.301, which provides particulate matter emission may not be visible looking directly overhead at the property line.

C. Opacity Surrogate for PM

For the coal-fired boilers, the permits generally rely on opacity as a means to indirectly address emissions of PM. For this purpose, the permits require that the sources identify the level of opacity at which compliance with the applicable PM standard is assured. This level is described as an “upper bound of the 95 percent confidence level” of opacity. This terminology recognizes that even during normal operation of a boiler, there is variability in the opacity, that is, a range of opacity levels. The source is charged with identifying the upper bound, i.e., the highest value, within this range within which compliance with the PM limit can be assured. In this regard, sources are not being asked to determine a theoretical value for the level of opacity that might correlate with compliance/noncompliance with the PM standard. They are instead being asked to undertake a more pragmatic task to evaluate the range of opacity in which a boiler normally operates. The resulting value is then used as the initial reference point with monitored opacity to differentiate operation of a boiler in a range within which the source believes that compliance with the PM emission limit is assured from other operation of that boiler.

The key data for this showing will be test data for PM emissions, with associated opacity data. This data may also be supplemented with other analytical data as part of diagnostic work performed on an ESP or other engineering evaluation.

Sources are required to submit this value to the Illinois EPA, along with supporting explanation and documentation. This allows for independent review of this information by the Illinois EPA and others. At a more basic level, it assures that the fundamental information upon which a source is relying to assure compliance with PM emission standards is in the public arena. As additional PM emission data becomes available from emission testing, the sources must review their determination. If the test data leads a source to revise the value, the source must submit the new value (or values) to the Illinois EPA with a new evaluation and supporting documentation. In this regard, the Illinois EPA would anticipate that the value would only become higher, as additional data demonstrates that compliance can still be assured at higher levels of opacity.

Alternatively, if test data addresses an alternative mode of operation, in a circumstance where a boiler has two or more distinct modes of operation, a separate value can be prepared for each mode of operation, with separate explanation and documentation for distinct mode of operation.

This approach reflects a careful consideration of the technical circumstances of the coal-fired boilers at these plants, which, with only two exceptions, are equipped with ESP for control of PM emissions. Technically, opacity has a long history of being used as an indicator for PM emission. Opacity can be monitored on a continuous basis and directly provides a quantitative measurement that is indicative of the overall performance of the PM control devices on a particular boiler. Use of opacity avoids reliance on the detailed operating parameters of the various PM control devices on an emission unit. In this

regard, the ESPs used on the boilers at these plants are best considered a number of separate control devices, each with their individual electrical systems. Thus, the performance of an ESP may be the aggregate result of the performance of 16, 24 or more separate sections, depending on the size and design of an ESP. These sections are arranged both across the gas flow and in series, so that the performance of no individual section is critical to the overall performance of the ESP. In addition to being affected by its electrical parameters (voltages), the performance of each section is also affected by factors that cannot be measured, such as buildup of ash on the collecting plates, re-entrainment of ash during rapping, variation in resistivity of the fly ash, gradual deterioration of the collecting plates and breakage of discharge wires. All these factors should be considered and accounted for in the design and maintenance of an ESP, as an ESP must still perform adequately when it is approaching the next scheduled maintenance. However, these factors do mean that for purposes of periodic monitoring required under these CAAPP permits, continuous opacity monitoring is a far more practical technique than reliance on monitoring of operating parameters for addressing the operation and performance of an ESP.

This approach also reflects the current circumstances of these plants with respect to the test data that is available for PM emissions, and opacity levels and values of ESP operating parameters during such tests. The lack of such data would prevent establishment of opacity levels, or ESP operating parameters, at this time that can be precisely coordinated with compliance with the applicable PM emission standards. However, it is possible to set levels of opacity that can reliably assure compliance with such standards. Exceedance of such levels could not be considered to indicate violations of the PM standards. Rather they would constitute periods of operation whose compliance status is uncertain, which must be pursued with further evaluation by the source on a case-by-case basis.

The sources have generally “objected” to the use of opacity as a surrogate for the PM emitted from their coal-fired boilers. These objections are not well founded. Opacity is certainly not a perfect surrogate for PM emissions, however, this is not uncommon with surrogates, which by their very nature, stand in place of another. Still, opacity monitoring has a long history of being used to assess the performance of PM control devices. In this regard, opacity is certainly a robust means to distinguish compliant operation of a coal-fired boiler and its ESP from impaired operation, for which further investigation or remedial action should be initiated. This is the approach that has generally been taken historically with opacity. This is also the approach that has been taken in these permits with respect to opacity monitoring.

Moreover, the sources have not come forward with an alternative approach in place of reliance on opacity monitoring as the primary surrogate for PM emissions on a day in, day out basis. Indeed, these same sources also acknowledge that ESP performance also is not a measure for establishing quantitative PM emission levels. They suggest that stack tests are the only means to demonstrate compliance with the PM emission standard. This is not a constructive comment, as stack tests cannot be conducted on a continuous basis. In this regard, the sources are effectively under a comparable obligation with respect to

performing periodic monitoring as the CAAPP permits are for providing periodic monitoring. CAAPP sources must certify compliance on an annual basis with the applicable PM limits. This necessitates use of sound methods and reasonable inquiry by sources to verify compliance with a PM standard that applies on an hour-by-hour basis. This necessitates a simple approach that readily assures compliance most if not all of the time, with detailed analytical effort to confirm compliance focused on a small number of operating hours. This is fully consistent with the approach being taken in these CAAPP permits.

From a legal perspective, a final issue is whether the CAAPP permits must set a specific level of opacity that is deemed to be equivalent to the applicable PM emission limit. As already discussed, this is not possible on a variety of levels. At a minimum, such action, if flawed, could inappropriately shield a source from the underlying PM emission standard. It would also be inevitable that such an action would be flawed as the operation of a boiler may change over time and the coal supply will also change, affecting the nature and quantity of the ash loading to the ESP. These type of changes cannot be prohibited, as they are inherent in the routine operation of coal-fired power plants. However, such changes could invalidate any pre-established opacity value. In addition, as also noted in comments by environmental organizations, there is a limited amount of historical test data to make such an exact correlation between opacity and PM. Finally, under the CAAPP, these permits do not require that such a determination be made. Rather these permits need only include such provisions as are needed to assure compliance. This can be accomplished without setting a specific level of opacity in the permits. This is not without a desirable environmental consequence, as it by necessity obligates sources to operate with ample margins of performance such that compliance with the applicable PM limits is assured.

Compliance Assurance Monitoring

Compliance Assurance Monitoring (CAM) is not relevant to initial CAAPP permits. In addition, the sources have not submitted the relevant information for the emission units at these sources upon which to make a formal determination of CAM applicability. While it is likely that most emission units supporting the coal-fired boilers at these plants will not be subject to CAM, it is not appropriate for the Illinois EPA to address this subject at this time. Accordingly, references to this issue in the permit including any non-applicability determinations have been stricken.